

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A process for producing a corrosion- and wear-resistant layer on a substrate by spraying on an iron oxide-based material, characterised in that the iron oxide-based material which has at least 20% by weight of magnetite (Fe_3O_4 and/or Fe_2O_4) is applied by on-line controlled ~~plasma~~ thermal spraying and in that the layer of the material is monitored by an on-line monitoring and control system, to produce a homogeneous and thin layer of < 250 μm thickness.
2. (original) A process as set forth in claim 1 characterised by on-line monitoring and control by means of an ITG-camera (18) directed on to the spray jet (10), an LDA-detector (20) with LDA-laser (22) and an HSP-head (24) (Figure 1).
3. (previously amended) A process as set forth in claim 1 characterised by on-line monitoring and control by measurement of the particle speed in the spray flame.
4. (previously amended) A process as set forth in claim 1 characterised by on-line monitoring and control by means of measurement of the particle speed in the spray flame by a laser Doppler anemometer by means of a beam (60) which is emitted from a laser device (62) and which is divided into two partial beams (60_a, 60_b) by an optical transmission system (64) (Figure 6).

5. (previously amended) A process as set forth in claim 1 characterised by on-line monitoring and control by measurement of the particle speed in the spray flame by means of a high-speed pyrometer.
6. (previously amended) A process as set forth in claim 1 characterised by on-line monitoring and control in which the particle temperature in the spray flame is measured by means of infra-red thermography (Figure 3).
7. (original) A process as set forth in claim 1 characterised by on-line monitoring and control in which the measured amount of gas is analysed.
8. (previously amended) A process as set forth in claim 1 characterised by on-line monitoring and control in which a measured amount of plasma gas is analysed.
9. (original) A process as set forth in claim 1 characterised by on-line monitoring and control in which a measured current-voltage characteristic is evaluated.
10. (currently amended) A process as set forth in claim 1 characterised by on-line monitoring and control in which an amount of powder , which is fed to ~~the~~ a plasma spray, ~~flame~~ is measured.
11. (cancelled)

12. (previously amended) A process for producing a corrosion- and wear-resistant layer as set forth in claim 1 characterised in that an on-line controlled, water-stabilised plasma spray process is used as the coating process.

13. (cancelled)

14. (previously amended) A process as set forth in claim 13 characterised in that the material comprises pure magnetite.

15. (previously amended) A process as set forth in claim 13 characterised in that the material comprises magnetite and at least one further metallic material.

16. (previously amended) A process as set forth in claim 13 characterised in that the material comprises magnetite and at least one intermetallic compound.

17. (previously amended) A process as set forth in claim 13 characterised by an addition of carbide or carbides or nitride or nitrides or silicide or silicides or boride or borides or oxide or oxides in the material.

18. (previously amended) A process as set forth in claim 13 characterised by the addition of a mixture of metals, intermetallic compounds, carbides, nitrides, silicides, borides and/or oxides in the material.

19. (previously amended) A process as set forth in claim 15 characterised by magnetite and an addition of up to 50% by weight of Cr, CrNi or a ferritic steel in the material.

20. (previously amended) A process as set forth in claim 13 characterised in that the material comprises magnetite and carbides of W, Cr, Mo, Nb, Ta, Ti or V.

21. (previously amended) A process as set forth in claim 20 characterised in that the material comprises magnetite with an addition of up to 30% by weight of tungsten and/or chromium carbides.

22. (cancelled)

23. (previously amended) A process as set forth in claim 13 characterised by a mixture of magnetite and chromium oxide in the material with a proportion of the chromium oxide of between 1 and 40%.

24. (previously amended) A process as set forth in claim 13 characterised by a grain size of said material to be sprayed of between 0.05 and 150 μm .

25. (previously amended) A process as set forth in claim 13 characterised by a filling wire in the form of wire spray material whose filling comprises magnetite and whose sheath comprises an alloy.

26. (previously amended) A process as set forth in claim 13 characterised by a powder grain with good flow properties, which is produced from the powder material mixture by spray drying.

27. (previously amended) A process as set forth in claim 13 characterised by a powder grain which is resistant to separation of its mixture and which is produced from the powder material mixture by means of an agglomeration process.

28. (currently amended) A process for producing a corrosion- and wear-resistant layer on a substrate ~~by thermal spraying~~ as set forth in claim 1 characterised in that said material to be sprayed has more than 30% by weight of magnetite (Fe_3O_4 and/or Fe_2O_4).

29. (previously presented) A process as set forth in claim 21 characterised by magnetite and an addition of up to 40% by weight of Cr, CrNi or a ferritic steel in the material.

30. (previously presented) A process as set forth in claim 20 characterised in that the material comprises magnetite with an addition of up to 20% by weight of tungsten and/or chromium carbides.

31. (previously presented) A process as set forth in claim 13 characterised by a proportion of the chromium oxide of between 5 and 30% by weight.

32. (previously amended) A process as set forth in claim 13 characterised by a grain size of said material to be sprayed of between 0.1 and 120 μm .

33. (previously presented) The process as set forth in claim 1 wherein said spraying said iron oxide-based material comprises spraying said iron oxide-based material having more than 30% by weight of magnetite (Fe_3O_4 and/or Fe_2O_4).

34. (currently amended) The process of claim 1 wherein said spraying by on-line controlled ~~plasma~~ thermal spraying comprising a mode of spraying selected from the group consisting of high-speed flame spraying, plasma spraying, high powered plasma spraying (HPPS), shroud plasma spraying (SPS), on-line controlled wire-flame spraying, thermal spraying and arc wire spraying.

35. (currently amended) The process of claim 1 wherein said spraying by on-line controlled ~~plasma~~ thermal spraying comprises plasma spraying and said plasma spraying is performed in a mode selected from the group consisting of plasma spraying in air and plasma spraying in a vacuum.